IMPACT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF SELECTED CEMENT COMPANIES IN INDIA

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Abstract : The purpose of this study is to find out the relation between working capital management and profitability of cement companies in India. It aims in finding out how working capital management like inventory management, account receivable and account payable management and cash management affects the profitability of the cement companies in India. Correlation and regression have been used for testing the hypothesis. It is concluded that inventory conversion period and account payable period are negatively correlated with the profitability while account receivable period and cash conversion period depicts positive association with the profitability.

IndexTerms - **Working capital, cement companies, liquidity, profitability, inventory management, cash conversion cycle.**

I. INTRODUCTION

   Working capital is one of the most important financial parameter to run a business without which a business becomes unsustainable. Its circulation only keeps the business alive where it stops business becomes motionless. The study on the efficient management of the working capital among different firms and industries has been carried by the researchers given above. Now the researchers given below have studied the relationship between efficient management of working capital and its impact on the profitability. They attempted to answer the question that "Does maintaining an suitable working capital has any impact on the profitability or performance of the firm?" On this topic very few researcheshave been conducted in India while several researched has been carried abroad to analyze the relation of maintaining suitable working capital on profitability.

II. LITERATURE REVIEW

   There are many researchers in India as well as abroad who had carried the study on the effective management of working capital and also compared the management of working capital among different firms and industries.
   Majumdar(1992), has carried the study on the arrangement of financing the corporate working capital in India. 10 companies from private sector and 10 companies from public sector were selected for the study. The period of his investigation was from 1981 to 1990. Statistical techniques and financial tools were used. Study concluded that chief part of working capital finance is from borrowings and effect of cost on the selection of sources of working capital is not at all significant.
   Working capital management in Himachal Pradesh Agro Industries Corporation Limitedhas been studied by Bansal(2001) for the duration of 10 years from 1985 to 1995. Statistical techniques and financial toolswere used for the purpose of the study. The study reveals that restrictive policy of financing current assets has been adopted by Himachal Pradesh Agro Industries Corporation Limited which resulted in shortage of working capital. The results further presented by the study concluded that the corporation has not been managing the cash, inventory and production capacity properly.
   Garg (2001) analyzed the trends in working capital and position of liquidity of 8 Haryana Government owned industrial enterprises in Haryana. The duration of study was from 1978-88. The statistical techniques and accounting tools have been used for the purpose of study. The study highlighted that most of the enterprises had experienced shortage of funds for buying raw material and paying other liabilities mainly due to large investments in current assets. The operating efficiency of the firm under study has adversely been affected due to blockage of funds in short term assets.
   The study on management of working capital in Himachal Pradesh State Cooperative Agricultural and Rural Development Bank has been studied by Pathania (2001) for the period of five years starting from 1990 to 1995 using ratio analysis. The study concluded that the cash has not been utilized efficiently and effectively by the Bank under study which resulted in decrease in profitability.
   Ghosh and Maji, (2003)analyzed the efficiency in management of working capital of cement companies in India during the period of 1992 – 1993 to 2001 – 2002 using the indices as efficiency of working capital management, performance, utilization, and overall efficiency in place of common working capital management ratios. This paper also tested the speed of achieving the target efficiency level of the individual firms comparing it against the industry norms set for the time period of study. Outcomes of the study specified that the whole Cement Industry in India did not perform extraordinarily during this period.
   The efficiency in management of working capital in National Thermal Power Corporation Ltd. has been studied by Jafar and Sur (2006)for the period of 10 years from 1983-81 to 2002-03. The quantitative analysishas been used for the purpose of study and

presented the results that during the post-liberalization era the company has been able to manage working capital efficiently by taking into account the current business environment with respect to liberalization, globalization and competitiveness.

Bhunia(2007),studied the management of working capital of Steel Authority of India Limited and Indian Iron and Steel Company Limited for the time period of 1991-92 to 2002-03 using quantitative analysis. Results prooved that both the companies have inefficiently managed the inventory and receivables .Moreover the sufficient amount of working capital was also not being maintained by both the companies under the research.

III. RESEARCH METHODOLOGY

The purpose of this study is to find out the relation between working capital management and profitability of cement companies in India. It aims in finding out how working capital management like inventory management, account receivable and account payable management and cash management affects the profitability of the cement companies in India.

3.1 Objectives of the study

Keeping the purpose of the study in mind, this study will focus on main Objective of the study:

To examine the impact of Inventory management on the profitability of selected cement companies in India.

3.2 Hypothesis formed

H1: Inventory Conversion period has no significant impact on Return on Assets (ROA) of cement companies in India.

3.3. Research Methods

This study has analysed the relationship between working capital management practices and its effects on profitability of 20 cement firms listed in Bombay stock Exchange for a period of ten years from 2005 – 2014.The research method adopted in the study is based on the secondary data collected from the annual reports of the companies. The research method used in the study is descriptive in nature. The study has described whether there is any relationship between the variables defining working capital management and variables defining profitability of the firm.   .

3.4. Sampling Design

The sample of this study is confined to cement sector of India. Sample design is to select the sample from the given population. It refers to the techniques or the procedures the researcher would adopt on selecting items for the sample (Kothari,C.R.,2004).The total population of this study consists of all the Cement companies in India. There are total 47 cement companies listed in Bombay Stock Exchange in India as on 31st March 2014.All companies with unavailable data for the entire study period or whose financial years were not in uniformity were disqualified from the sample. Out of these 47 companies 20 companies have been selected for the study.The lists of the companies under study are given in annexure I.

The Sampling technique adopted for this study is probability sampling.“ This is where every member of the population presumably had an equal chance of being selected”(Fraenkel,wallen and Hyun,2012). Every cement company listed in Bombay Stock Exchange was given equal chance of being selected.

3.5 Data set

Annual reports of individual cement company formed the sampling unit of this study,The data used is secondary in nature ,as given in the income statements and balance sheets of selected sample companies in the cement industry listed in Bombay stock Exchange. The Income statement and balance sheets of these individual cement companies have been obtained from the website www.moneycontrol.com for the period of 10 years from 2005 to 2014.The reason for restricting to this period is that latest data for investigation was available for this period only.The general information relating to Cement industry of India is obtained from India Brand Equity foundation(IBEF) using the link www.ibef.org. Along with it various books, journals, newspapers, articles and published material of companies available in the libraries and internet are also used.

3.6 Description of Variables:

This section aims at identifying the variables that have been used to test the hypotheses of this study. They include dependent, independent and control variables. Selection of the variables is based on the previous studies.

ROA (Return on Assets)

Return on Assets can be defined as profitability ratio that measures the net income produced by the total assets during the period by comparing net income to the total assets. The formula used in the study to calculated return on Assets is as under:

ROA= Profit before Interest and Tax / Total assets

The figures for PBDIT i.e. profit before depreciation, interest and tax were taken from the income statements of the annual report of the company. Depreciation being the non-cash item was deducted to get PBIT i.e. Profit before interest and tax. Total asset includes current assets and fixed assets. The figure of total assets was taken from the annual report of the firms out of which current liabilities and provisions were deducted to get capital employed.

Inventory Conversion period

Inventory Conversion period is the average time period required to convert raw material into finished goods. It involves the time required to convert raw material into work in progress and work in progress into finished goods. The formula used in the study to calculate inventory conversion period:

Inventory Conversion Period = Average Inventory /Net Sales *365

Average Inventory = Opening Inventory + Closing Inventory / 2

Current ratio

Current ratio is the ratio that measures the short-term liquidity of the firm. It shows the firm's ability to pay back its short and long-term liabilities. The ideal current ratio for any firm will be 2:1.The formula used in the study to calculate the current ratio :

Current ratio = Current Assets / Current Liability.

Current Assets = Inventories +Receivables + Marketable Securities +Prepaid Expenses.

Current Liabilities = Short Term debts + Account payables + Accrued Liabilities + Other Debts.

Size of the firm

Size of the firm affects the profitability of firm, to keep size of the firm as constant factor this study used logarithm of sales as control variable. The formula used to calculate the size of firm:

Size of Firm : Natural logarithm of Net sales.

Short Term Financial Assets

Short Term financial assets of the company is calculated as Loans and advances of the firm divided by total assets of the firm.

STFA: Loans and Advances/Total Assets.

Leverage

Leverage of the firm is calculated as debt to the total assets of the firm.

Leverage= Total debt/Total Assets.

Dependent Variables used in the study

Return on Assets which is measure of profitability of the firm is used as dependent variable. The ratios Return on assets and Return on Investment have been used by several authors in the financial literature including Lairodi et al(1999) , J.AloyNiresh (2012) ,Jimma (2014). Smith and Begemann (1997),Vishnani and Shah (2007). Owolabi and obida (2012) has used return on investment as the only measure of profitability. KessevenPadachi (2006) and Victor Chukwunweike (2014) have used return on assets as the only profitability measure. Velnamply,T and Alimalathasam ,B (2008) have used Return on equity and operating Profit ratio as profitability measure while Deloof (2003) and Reheman and Nasr(2006) have used Gross operating income and Net operating profit as the only profitability measure.

Independent Variable used in the study :Inventory Conversion Period has been used as independent variable. It has been used by several authors in the financial literature including KessevenPadachi (2006) ,Reheman and Nasr (2006) ,Ramachandran and Janakiraman (2009) ,Gill,Biger and Mathur (2010) ,JustynaZygmunt (2013) ,Panigrahi and Sharma (2013).Deloof (2003) ,LazarideandTryfonidi(2006) have used cash conversion cycle as the only variable. T.Chandrabai and JanardhanRao (2011) ,J.AloyNiresh (2012) have used current ratio, quick ratio and liquidity ratio as independent variables.

Control Variables used in the study

Current ratio , size of the firm ,short term financial assets ratio and leverage are used as control variables. Current ratio is calculated as current assets divided by current liability. Size of the firm has been measured as logarithm of sales in this study. Short term financial assets ratio is calculated as loans and advances divided by total assets. Leverage of firm is computed as debt divided by total assets of the firm. The same variables have been used by several authors includingDeloof (2003),Eljelly(2004), Lazaride and Tryfonidi (2006) , Reheman and Nasr (2006) ,Panigrahi and Sharma (2013).

Variables used in this study

Dependent Variables	Return on Assets (ROA)	ROA= PDIT/Total Assets
Independent Variables	Inventory Conversion Period(ICP)	ICP= Average Inventory /Net Sales *365
	Current Ratio (CR)	CR=Current Assets /Current Liabilities
	Size of firm (Log of Sales)	Size of firm= Natural Logarithm of sales
	Short term financial assets(STFA)	STFA=Loans and Advances/Total Assets
Control variables	Leverage	Leverage=Debt /total Assets.

DEPENDENT VARIABLE RETURN ON ASSETS(ROA)	INDEPENDENT VARIABLE INVENTORY CONVERSION PERIOD (ICP)

CONTROLVARIABLES Current Ratio (CR) Size of firm (Log of Sales) Short term financial assets (STFA) Leverage
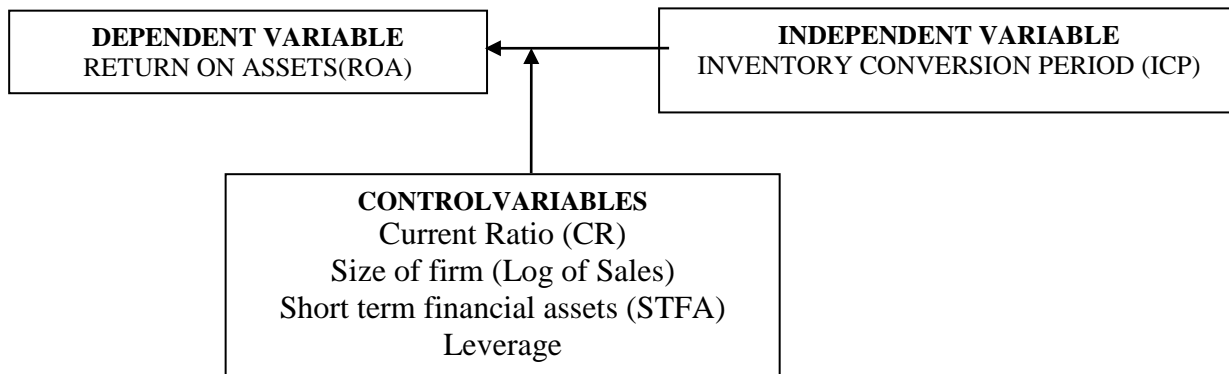
Source :Author Self Design

3.7 Statistical tools used

This study has used both the quantitative and descriptive model of analysis. Descriptive statistic depicts the mean, standard deviation, maximum and minimum values for the chosen variables. In quantitative analysis study applied two methods, pearson correlation and hierarchical regression analysis. Correlation analysis is used to measure the degree of association between dependent and independent variables used in the study. Hierarchical regression analysis is used to study the cause and effect relationship between profitability variables and working capital management variables keeping some variables as controlled. Correlation and regression has been applied using Statistical Package for Social Science (SPSS Version 20.00).

IV. DATA ANALYSIS

Table 4.2: Pearson Bivariate Correlation Analysis
Correlations

		ICP	ARP	APP	CCC	CR	Sizeof Firm	STFA	Leverage	ROA
ICP	Pearson Correlation	1								
	Sig. (2-tailed)									
ARP	Pearson Correlation	.200	1							
	Sig. (2-tailed)	.398								
APP	Pearson Correlation	-.206	-.201	1						
	Sig. (2-tailed)	.384	.395							
CCC	Pearson Correlation	.385	.473*	-.824**	1					
	Sig. (2-tailed)	.094	.035	.000						
CR	Pearson Correlation	.241	.836**	-.393	.492*	1				
	Sig. (2-tailed)	.307	.000	.086	.028					
Size OF Firm	Pearson Correlation	-.311	-.493*	.362	-.571**	-.521*	1			
	Sig. (2-tailed)	.182	.027	.117	.009	.018				
STFA	Pearson Correlation	.233	.217	.257	-.321	.238	.081	1		

	Sig. (2-tailed)	.323	.359	.274	.168	.312	.733			
Leverage	Pearson Correlation	-.020	-.224	.192	-.091	-.203	-.161	.011	1	
	Sig. (2-tailed)	.933	.343	.416	.701	.390	.496	.964		
ROA	Pearson Correlation	-.068	-.426	.134	-.209	-.504*	.551*	-.060	-.347	.761**
	Sig. (2-tailed)	.777	.061	.574	.376	.024	.012	.800	.134	.000

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis : Inventory Conversion period has no significant impact on Return on Assets (ROA)of cement companies in India.

Correlation

The correlation result between Inventory conversion Period and Return on Assets of cement companies in India indicates that there is weak negative correlation between both the variables with the value as (-0.068) (refer table4.2). That means if Inventory conversion period increases, than a somewhat decrease is seen in the ROA of cement companies in India. On interpretation of the significance (2 tailed) value which came out to be 0.777; it can be concluded that there is no statically significant correlation between ICP and ROA of cement companies in India. That means increase or decrease is one variable do not significantly relate to increase or decrease in other variable (refer table 4.2).

Regression

Multiple hierarchical regression has been used to analyze whether inventory Conversion period has significant impact on Return on Assets (ROA)of cement companies in India .Table contains two models, model 1 and model 2. Model 1 includes the regression analysis considering only the control variables such as current ratio, size of firm, short term financial assets ratio and Leverage while Model 2 refers to the final regression analysis including both control variables and independent variable i.e. the main component of working capital management, inventory conversion period.

R in the table indicates that positive correlation has been seen between the constant variables and dependent variable, ROA (value 0.506). Positive correlation has been seen between the overall variables including both the independent variable Inventory conversion period along with constant variables and the dependent variable, ROA at .519.

The result of R square indicates that in model 1 constant variables have moderate relationship with dependent variable ROA signified by R square that is 50.6% (refer table 4.3). It shows that 50.6 % of ROA change is because of constant variables change in cement companies in India .However for final model including the Inventory conversion period the value increases to 0.519 or 51.9 %. The difference between the two (51.9% -50.6%) 1.3 % which accounts for an extra 1.3 % variation in dependent variable ROA is because of inventory conversion period. The same value in the table (refer table 4.3) is shown by the value r square change also.

The adjusted R square provides more accurate value information for the true population. The adjusted r square is 34.7 %(Refer Table 4.3) for ROA which indicates that formula is moderate fit with inventory conversion period
The tolerance statistics were 0.829 (Refer Table 4.4) and variance inflation factor (VIF) is 1.206 (Refer Table 4.4).It is indicating that is no multi-collinearity problems among the independent variables in the data.

In order to find out the autocorrelation in the residual and in regression, Durbin-Watson (DW) value is computed. The result shows the value of 1.842 for ROA which concludes that there exist no autocorrelation in the regression since their DW is close to 2 .Therefore independence of residuals are not violated.
Statistically strong significance has been found between inventory conversion period and ROA at a significance level of 5 %. Therefore, it can be said that there is impact of ICP on the ROA of cement companies in India.
Hence, 0.552> 0.05 – Null Hypothesis (H$_1$ is rejected)

Therefore ICP plays a positive significant role in change in ROA.

Table 4.3 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics						Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change		
1	.712a	.506	.375	.051522	.506	3.846	4	15	.024		
2	.720b	.519	.347	.052637	.013	.371	1	14	.552		1.842

a. Predictors: (Constant), Leverage, Stfa, sizeoffirm, cr

b. Predictors: (Constant), Leverage, Stfa, sizeoffirm, cr, icp

c.   Dependent   Variable: ROA

Table 4.4 : Excluded Variables

Model		Beta In	T	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	icp	.124b	.609	.552	.161	.829	1.206	.549

a. Dependent Variable: ROA

b. Predictors in the Model: (Constant), Leverage, Stfa, sizeoffirm, cr

Table 4.5 : ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.041	4	.010	3.846	.024b
	Residual	.040	15	.003		
	Total	.081	19			
2	Regression	.042	5	.008	3.022	.047c
	Residual	.039	14	.003		
	Total	.081	19			

a. Dependent Variable: ROA

b. Predictors: (Constant), Leverage, Stfa, sizeoffirm, cr

c. Predictors: (Constant), Leverage, Stfa, sizeoffirm, cr, icp

V. RESULTS

This chapter discusses the results of the study. Each hypotheses result has been discussed separately in four different sections.

Hypothesis: Inventory Conversion period has no significant impact on Return on Assets (ROA) of cement companies in India.

The result of this hypothesis is similar with the study of Sharma and Kumar (2011),Chatterjee (2012) ,Shah and Sana (2006),Padachi (2006).They all studied the relationship between inventory conversion period with return on assets as profitability measure and the results indicated that inventory conversion period is negatively correlated with ROA . This study is partially significant with the study of Shin and Soenen (1998) as he concluded that inventory conversion period is negatively correlated with profitability in manufacturing sector while positively correlated in service sector. Furthermore, regression results depicts the

significant relation between the inventory conversion period and profitability which is similar to the study of Bhagchi, Kamrui (2012), Haresh (2012),Sarbapriya Ray (2012),Deloof (2003) , Lazaridis and Tryfonidis (2006),Teruel and Solano (2007),Chandrabai and JanardhanRao (2011). Teruel and Solan (2007) has taken the relation of inventory with the shareholders' value and depicted the negative relation, as the shareholders' value can be increased by reducing the inventory.

The average ROA for cement manufacturing companies in India is 14.84 % for the year 2005-2014.ROA tells how efficiently management is using its assets to generate profit. The higher the ROA, the better it is for company. It means company is efficiently generating profit from its available assets. ROA is having negative relation with all components of Working capital management and liquidity except APP and size of the firm. The results are founds to be consistent with result of the previous studies given by Sharma and Kumar (2011) Pimplapuri, Kulkarni (2011), Joshi and Ghosh (2012), Chatterjee (2012) Bhagchi, Kamrui (2012), Haresh (2012), Sarbapriya Ray (2012), Deloof (2003),Lazaridis and Tryfonidis (2006), Teruel and Solano (2007), Makori and Jagongo,(2013), Monica Singhania, Navaendu Sharma and Rohit (2014) .This study is partially significant with the study of Sharma and Kumar(2011).They concluded that inventory conversion period and account payable period are negatively correlated with the profitability while account receivable period and cash conversion period depicts positive association with the profitability.

VI. CONCLUSION

The study aimed to test that whether the efficient management of different components of working capital has any impact on profitability of firms in Cement Industry. It also used the Liquidity; size of firm, short term profits and leverage as control variables where the impact of such variables are controlled to find the impact of independent variables on the profits .The study Cleary indicates that ROA is having negative relation with all components of Working capital management except APP. It means the longer APP period results in higher ROA and vice versa. ROA also indicates negative significant relation with Current ratio and positive significant relation with size of the firm at a significance level of 5 %.It means that there is an inverse relation exists between liquidity and profitability. Furthermore, larger the size of the firm greater is the profit for those firms.

The conclusion indicates that firms in Cement industry need to employ efficient and effective working capital management practice because it impacts the ROA of the Company. The current ratio average is 1.8755 with a deviation of 1.337 on both side which clearly indicates that many firms in the cement industry not complying with the practice of maintaining the ideal ratio of 2:1 which should be followed. The average Cash conversion cycle for the firms in the cement industry is negative 387.94 days .The average inventory conversion period is 63.49 days . The sampled firms in the cement industry receive cash from the customers on an average of 30 days and pay to the creditors on average of 518 days .There is huge gap that exist between the firms account receivable and payable .Therefore firms in the cement industry keep adequate cash.

VII. RECOMMENDATIONS

The study found the negative significant relation between the collection period and ROA. The manager of cement firms should work efficiently on the collection policies. The delay in collection may cause defaults and bad debts leading to losses. Therefore, policies should be framed in such a manner that it minimizes the losses due to defaults.

The account payable period is having a positive relation with the profitability measure. The firm already enjoying a longer period of payment to the creditors which is a positive sign for the firm. Since the sampled cement firms are enjoying the longer credit period so the finance manager must make to efforts to invest the money efficiently with good return to reap the advantage of longer credit period. The manager at the same time must ensure that it maintains that good relation with the vendors so it may not loose good vendors in long run.From the study it has been observed that The sampled firms in the cement industry are not adequately complying with the practice of maintain liquidity of 2;1 following which is a good practice so manger should attempt to follow the same by working on maintaining adequate inventory in a firm.

VIII. RECOMMENDATION FOR FURTHER STUDY

Further the researchers could cover the relation between the components of working capital management and profitability on all other industries listed in India over a longer period and using different statistical tools in order to have more comprehensive results. The study can also be conducted on detailed study of relationship between each component of working capital management on the firm performance or profitability and shareholders value. Based on the summary, conclusion and recommendation in this research work, this study shows there are factors other than the components of working capital management as independent variable which affect the profitability. Researchers could identify those other factors, which affect the company profitability to enhance its profit.

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Table 1 Summary of previous research on the efficient management of working capital and it's in impact on firm's profitability

Researcher	Sample Firms ,Period	Result
Vijay Kumar and Venkatachalam(1996)	13 companies of sugar industry in Tamil Nadu	Liquidity is negatively correlated with profitability ICP,ARP,CCC are positively correlated with profitability
Shin and Soenen (1998)	58958 companies for the period 1975-1994.	Significant Negative relation between CCC and Profitability
SinghandPandey(2008)	Hindalco Industries Limited for the period 1990 to 2007	Significant impact on profitability.
Mittal et al (2010),	Gujarat Ambuja Cements Ltd (GAC Ltd) and Associated Cement Companies Limited (ACC Ltd) for the period of four years from	Significant relation between working capital components and profitability. Insignificant relation exist between Size and profitability.

	2006-2009	
Bhunia and Khan (2011)	230 steel companies over a period of 8 years from 2002 -2010	Liquidity has no significant impact on profitability.
Pimplapuri, Kulkarni (2011)	Bharat Petroleum Corporation Ltdfor five years vis., 2005-2010	Liquidity has significant negative impact on profitability.
Desai and Joshi (2011),		
Sharma and Kumar (2011),	263 Non financial Indian firms listed in BSE 500 during the period of 2000 to 2008	Inventory conversion period and account payable period are negatively correlated with the profitability while Account receivable period and cash conversion cycle depicts positive association with the profitability
Joshi and Ghosh (2012),	Cipla Ltd during the period 2004 to 2009	Significant Negative relation between liquidity and profitability.
Chatterjee (2012)	100 Indian companies listed in Bombay Stock Exchange for a period 2010-2011	ICP,ARP,APP and CCC as well as Liquidity are negatively correlated to profitability. Size and Profitability are positively correlated Debt and Profitability are negatively correlated.
Bhagchi, Kamrui (2012)	10 FMCG firms in India over a period of ten years from 2000-2010.	Significant Negative relation with profitability.
Haresh (2012),	CNX pharmaceutical companies listed on National Stock Exchange of India	Significant negative relation on profitability .
Sarbapriya Ray (2012)	311 Indian manufacturing firms for the period of 1996 -2010	Significant negative relation on profitability .
Monica Singhania, Navaendu Sharma and Rohit (2014)	Non-financial companies in countries of South East Asia, South Asia and East Asia.	CCC and ARP is negatively correlated with the profitability APP is positively correlated with profitability.
Deloof (2003)	1009 large Belgian non-financial firms for the 1992-1996 period	Significant negative relation on profitability
Eljelly (2004)	929 joint stock companies in Saudi Arabia from three different industries.	significant positive relation between the size and profitability of the firm. negative relationship between profitability and liquidity. CCC is considered important measure of liquidity than current ratio.
Padachi (2006)	Small Mauritian manufacturing firms, during 1998 to 2003	Significant negative relation of APP and ARP on profitability. Insignificant relation between ICP and Profitability.
Lazaridis and Tryfonidis (2006)	131 companies listed with Athens Stock Exchange for the period of 2001-04.	Significant negative relation on profitability
Shah and Sana (2006),	7 oil and gas companies listed with Karachi Stock Exchange for the period from 2001 to 2005	ICP ,ARP ,CCC and Size have negative relation with profitability. APP is positively correlated with profitability.
Raheman and Nasr (2007)	94 quoted Pakistani firms.	significant negative relationship between liquidity, Debt and profitability. Significant positive relationship was found between size of the firm and

		its profitability.
Teruel and Solano (2007)	8,872 Spanish SMEs for the period 1996-2002	Significant negative relation on profitability
Quayyum (2011)	the cement industry of Dhaka Stock Exchangeperiod from 2005 to 2009	Significant relation of liquidity and working capital components on profitability.
Chandrabai and JanardhanRao (2011),	ACC Ltd during the period of 6 years from 2004 -2010	Working capital components have significant impact on profitability.
Makori and Jagongo,(2013),	Five manufacturing and construction firms listed on the Nairobi Securities Exchange (NSE) is usedduring the period 2003 to 2012.	ICP ,ARP and CCC have negative relation with profitability. APP is positively correlated with profitability.
Thuvarakan (2013),	sample of 60 companies from manufacturing, 20 companies from construction, and 17 companies from telecommunication sector listed in London stock exchange for the period 2006-2011	no significant relation between the working capital and its profitability